

ABSTRACT

The methods and systems described provide for an *in-situ* detection of planarity of a layer that is deposited on or etched off the surface of a substrate. Planarity can be detected using various detection mechanisms, including optical, electrical, mechanical and acoustical, in combination with the electrochemical mechanical processing methods, including electrochemical mechanical deposition and electrochemical mechanical etching. Once planarity is detected, a planarity signal can be used to terminate or alter a process that has been previously initiated, or begin a new process. In a preferred embodiment, an optical detection system is used to detect planarity during the formation of planar conductive layers obtained by electrochemical mechanical processing.